Capital Structure and Financial Performance: Evidence from Listed Firms in the Oil and Gas Sector in Nigeria

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Abstract: This study examined capital structure and financial performance of firms in the oil and gas sector in Nigeria. Expo-facto research design was adopted and the population covered all the 12 listed Oil and Gas firms in Nigeria; out of which, 10 firms were randomly sampled. The study covered 10 years, spanning from 2010-2019 and the data used were gathered from the financial reports of the sampled firms. A regression analysis was carried out on the panel data with regards to pooled Ordinary Least Square (OLS) estimation, fixed effect estimation and random effect estimation. It was discovered that total debt ratio, long-term debt ratio and short-term debt ratio have a negative effect on return on asset with their respective coefficient values of -0.504, -0.291, and -0.422. However, the negative effect was only significant for short-term debt ratio with the probability value of 0.000, as against the insignificant negative effect of total debt ratio and long-term debt ratio with their respective probability values of 0.423 and 0.098. In the same vein, debt equity ratio has a positive and significant effect on return on asset to the tune of 0.352(0.002<0.05). It was concluded that the effect of capital structure on financial performance of firms, in terms of return on equity was statistically significant. Thus, it was therefore recommended that financial managers should establish a clear policy for capital structure that will engender the right mix of equity and debt that will improve firms' profitability.

Keywords: Capital Structure, Financial Performance, Return on Equity, Debt Equity Ratio, Total Debt Ratio, Return on Equity.

I. INTRODUCTION

The significance of the oil and gas sector to the well-being of Nigeria cannot be overstretched. The sector seems to contribute significantly to the growth and development of the nation. According to the available data on the website of the Nigeria Stock Exchange (NSA), there are 12 listed firms in the oil and gas sector. Like any other company, these companies have shareholders through which the needed capital is raised. Resources are pooled together by shareholders for a definite reason (profit maximization) and managers are to be effective and efficient in managing the resources and ensure that the stated objectives in terms of financial performance are achieved as and when due.

Ibrahim (2019) viewed financial performance as the effective and efficient utilization of resources by an organization for the accomplishment of its objectives, resulting in the increase in sales market share, share price, profitability, cash flows and earnings and meeting with the various stakeholders' expectations. Financial performance in terms of profitability is the ability of a firm to generate revenue that exceeds the production cost, in relation to the firm’s capital base. Ongore and Kusa (2013) defined profitability as a relationship between the profits generated by the enterprise and investments that contributed to the achievement of these profits. This can be measured through Return on Assets (ROA), Return on Equity (ROE), etc.

Profit maximization is influenced by many factors among which is capital structure, which is the crux of this study. While a newly established business needs capital to carry out its operational activities, an existing business needs capital for expansion related reasons. This informs that capital is the life-wire of every business and its availability determines the going concern of organizations. As much as capital is needed for the smooth running of organizations, its structure has generated a lot of concerns over the years. Capital structure is the configuration of equity and debt used to fund the operations of a firm (Muhammad, Ahsan & Kiran 2017). Capital structure of organizations is traceable to two investors, creditors and shareholders, connoting debt financing and equity financing respectively. It is the mix of debt and equity maintained by a firm.

Over the years, the choice of capital structure by organizations has been a great issue because of its importance to the financial performance. Also, the mix of funds affects the cost and availability of capital and thus, firms’ investment source (Muritala, 2012). In the opinion of
Modigliani and Miller (1958), capital structure of firms is inconsequential because of similar expectations and frictionless markets. However, Ikponmwosa and Eriki (2017) noted that the structure of the capital of organizations in this contemporary time is consequential to their financial performance. It determines to a larger extent the performance of organizations when taxes, agency cost, etc. are taken into consideration. The root of the argument is anchored on the influence of debt-equity mix on the financial performance of firms.

The debate has generated a lot of studies over the years. Studies like are Nirajini and Priya (2013), Kbewar (2012), Rajendran and Nimalthasan (2013), Yinusa, Ismail, Yulia and Olawale (2019), Goh, Hall and Rosenthal (2016) reported a positive significant effect of capital structure on financial performance. However, findings reported by Maina and Kondongo (2013), Prahalathan and Ranjani (2011), Muritala (2012), Sabin and Miras (2015) and Babalola (2012) revealed no association between capital structure of firms and financial performance. Ikponmwosa and Eriki (2017) and Sebastain and Onuegbu (2018) reported that capital structure has an inverse relationship with firms’ profitability and Firm value. The mixed findings render the study inconclusive and give the impetus for the current study.


Based on the identified gaps, this study examined capital structure and financial performance of firms in the oil and gas sector in Nigeria. Specifically, the study examined the effect of debt-equity ratio, total-debt ratio, long-term debt ratio and short-term debt ratio on return on equity. The findings of this study might help investors, existing and prospective, to make a productive investment decision. The rest of the study is organized as follows. Section 2 centers on literature review, section 3 covers the methodology, section 4 provides empirical results and discussion of findings and the last section, section 5, presents the conclusion of the study and recommendations.

II. LITERATURE REVIEW

The relevance of capital structure on firms' performance can never be overemphasized. Udobi-Owoloja, Gbajumo-Sheriff, Umoruru, Babatunde, and Ilimezekhe (2020) asserted that capital structure can be described as how an organization is funded by a blend of long-term capital (preference shares, bank loans, ordinary shares and reserves, debentures, convertible loan stock and so on) and short-term liabilities (bank overdraft and trade creditors and so on). Also, the capital structure of a firm is the arrangement of diverse securities issued by the firm to advance its actions (Rahman, Sarker & Uddin, 2019). From these views, capital structure encompasses both short-term and long-term sources of finance, including diverse securities which a firm relies on to bankroll its activities.

Capital structure is the configuration of equity and debt used to fund the operations of a firm (Muhammad, Ahsan & Kiran 2017). It can be evaluated as the total of liabilities, equities and debts, and the way they are aligned, organized and configured to influence the performance and worth of a firm. Capital structure consists of the debt and equity used to finance the firm. Debt in this context denotes borrowing of funds to complement the operations of the firm, either as long-term debts or as short-term debts. Equity in this context means the issuing of shares to investors to gain ownership in exchange for financial aid (Agarwal & Pradhan, 2017).

Debt in this context denotes any contract between a lender (creditor) and a borrower (debtor); which could be in form of notes, bonds, certificates, mortgages, debentures and leases. The uniqueness of debt financing is that the sum borrowed, plus interest, must be remunerated back to the lenders over an agreed period. The interest rate that must be claimed on the borrowed money, including a compensation schedule would be outlined in the contract between the lender and the borrower. Notably, even if a firm incurs a loss and cannot meet the outlined payments, they still have a duty towards the debt providers (Logavathani & Lingesiya, 2018).

According to Muhammad and Fateh (2016) equity empowers the firm to acquire funds without suffering debt. This implies that the fund realized through equity are not payable at a specific time. Owners of equity are investors (who acquire shares in the firm with the hope of recovering their investment out of future returns) and shareholders (who own the right to shares in the returns of the firm, in the way of dividends or future capital gains). Equity are of two types: internal equity and external equity (Mauwa, Namusongeandin & Oyango, 2016). Internal equity means retained profits of a firm which is part of the firm's distributable reserves (ordinary share capital and preference share capital). A firm has to acquire external equity when its internal equity (retained profits) is not adequate for the necessary investment prospect (Nguyen & Nguyen, 2020).
Capital structure appears to greatly influence the performance of firms. The performance of a firm encompasses the effectiveness, efficiency and competency of how goals are accomplished. Performance of any firm according to Siddik, Kabiraj and Joghee (2017) can be divided into profitability, liquidity, and establishment. Liquidity deals with its ability to adequately meet up with financial obligations. Establishment refers to its ability to perform for a long time, regardless of the market situation. However, this study would look at the performance of firms through its profitability. Profitability depicts the efficiency and effectiveness of management to utilize its total assets in order to create profits.

Financial literature affirms that profitable firms can utilize more debt because they are less vulnerable to risks of bankruptcy and fiscal anguish. The profitability of a firm evaluates its profits over its active years. As contained in Taqi, Ajmal and Perez (2016), firms with higher profitability indexes have better leverage for income they evade from taxes. Profitability of a firm is measured in different ratios; return on equity (R.O.E), return on assets (R.O.A), and so on. This study focuses on return on equity. Return on Equity is the evaluation of the quota of net income returned as a percentage of shareholders’ equity. Return on equity assesses a firm's profitability by displaying how much revenue a firm creates with the money shareholders have invested.

2.2 Theoretical Review

Theoretically, this study is braced with two theories-the trade-off theory and pecking order theory. The trade-off theory is widely believed to have been propounded by Modigliani and Miller (1958), who officially presented the interest tax shields linked with debt and the costs of fiscal anguish into a state preference approach. This theory accentuated that managers endeavor to steady the profits of interest tax shields against the current worth of the probable expenses of fiscal distress (Agarwal & Pradhan, 2017). Implicitly, the theory affirmed that some type of ideal capital structures should be present to balance the difference between the current worth of interest tax shields and the effect of bankruptcy.

This theory explains the amount of debt that should be incurred to counterbalance tax effect to the point where the risk of extreme debt is evaded. Trade-off theory asserts that the ideal capital structure is attained when the marginal current worth of the tax shield on additional debt is the same as the marginal current worth of the effects of fiscal anguish on additional debt (Muhammad & Fateh, 2016). Firms chose target leverage ratios through a trade-off between the gains and risks of increased leverage. This target leverage ratio is based on three variables: tax, fiscal distress costs and agency costs. This theory has a lot of strong assertions. However, it has been criticized based on some limitations.

One of the criticisms is that the theory assumes away many elements that can suggest that a specific assortment of equity and debt funding is for a particular firm (Akinyomi & Olagunju, 2013). The trade-off theory also fails to determine the broad extent of cross-sectional and time variation of perceived debt ratios. Also, in some situations, capital structure does not influence the worth of the firm. The relevance of this theory to the study is hinged on the fact that it explicitly clarifies the significance of a balanced capital structure that uses both equity and debt to finance the business operations. It also strikes the relationship between tax marginality and leverage, as well as debt ratio and leverage which influences the profitability of a firm.

Pecking order theory was first established by Donaldson in 1961. The pecking order theory accentuated that the costs of information are significant enough to cause managers to allot the security with the smallest information costs (Muhammad, Ahsan & Kiran, 2017). Pecking order theory postulated that to evade the information impacts of fresh share issues, a firm is more possibly to issue debt rather than equity. This estimation is premised on the managers’ belief that their firm’s securities are underpriced. The pecking-order theory affirms that there is no ideal capital structure, but firms allot between internal financing (retained earnings) to external funds reliant on the degree of estimated information asymmetry in the business setting.

The pecking order theory has made grounds in financial and economic literature, because its assumptions have strong empirical evidence. However, it has been noted by scholars that the theory failed to take note of social crises like recession, bankruptcy, general inflation and war in which the source of financing might not follow the proposed order (Twairesh, 2014; Xiaomeng & Yong, 2014). The relevance of this theory to the study is based on the fact that it underlines information asymmetry as part of the elements that can influence the profitability of a firm, because investors and managers would act based on the information they have, to manipulate the market for their gain, which would inevitably influence the profitability of the firm.

2.3 Empirical Review

Several studies have been conducted to examine the impact of capital structure on the performance of organizations. Presented in this section are the findings reported by some of these authors. Using, Panel Least Square (PLS), Taiwo (2012) reported that asset turnover, size, firm's age and firm's asset tangibility are positively related to firms' performance in Nigeria. It was reported that there was a negative and significant relationship between asset tangibility and ROA as a measure of performance. Ayad and Mustafa (2015) revealed that capital structure positively influences, in a significant way, the profitability of listed firms in Iraq using OLS. Furthermore, profitability, and assets (firm-size) have been found to be negatively influencing the capital structure of the listed firms. Also, Ikponmwosa and Eriki (2017) reported that financial leverage variables, including Total Debt to Equity (TDE) ratio, Total Debt to Asset (TDA) ratio and the ratio of Long-Term Debt to Equity (LDE) are inversely related to firm profitability and Firm value, measured by Return on Asset (ROA), Return on Equity (ROE) (measures of profitability) and Tobin’s Q (measure of value).
In the same context, another study was conducted by Sebastain and Onuegbu (2018) and they reported that a negative and insignificant impact of capital structure on corporate performance of the consumer goods firm sector of Nigeria. Consequently, Ajibola, Wisdom and Qudus (2018) found that revealed a positive statistically significant relationship between long term debt ratio, total debt ratio and return on equity, while there was a positive statistically insignificant relationship between return on equity and short-term debt ratio. Ahsan and Kiran (2018) found that debt ratio and long-term debt ratio have significantly negative relationship with return on asset (ROA) and return on equity (ROE), while short term debt has significant positive link with ROA and ROE while Yinusa, Ismail, Yulia and Olawale (2019) reported that a statistically significant relationship exist between capital structure and firm performance particularly when debt financing is moderately employed.

In another related study, Nelson and Peter (2019) found a negative and insignificant relationship between Debt to equity ratio and return on equity, a positive and insignificant relationship between Long term debt ratio and return on equity and a positive and significant relationship between Total debt ratio and return on equity. Contrarily, Nguyen and Nguyen (2020) discovered that capital structure has a statistically significant negative effect on the performance of firms. The result also showed the effect is stronger in state-owned enterprises than non-state enterprises in Vietnam. Udobi-Owolajo, Gbajumo-Sheriff, Umoru, Babatunde, and Ilimezekhe (2020) found that showed that debt to equity, liquidity ratio, are not statistically significant, short term debt to total asset ratio revealed a negative connection, firm size has a weak correlation with profit and long term debt to total asset ratio do not influence firms’ profitability of the consumer goods sector of Nigeria economy

A lot of studies have been carried out in this context. However, the mixed findings render the study inconclusive and gives the impetus for the current study. In the same vein, the years covered raise a concern if the reported findings still reflect the economic situations of the country, even with COVID-19 and its various economic effects on organizations. In the same vein, none of the available studies in this context has attempted to resolve it in the listed oil and gas companies in Nigeria. Based on the identified gaps, this study examined capital structure and financial performance of firms in the oil and gas sector in Nigeria. Since capital structure is indispensable to the performance.

### III. METHODOLOGY

Expo-facto research design was considered appropriate for this study since the study aimed at using existing information without any manipulation. The population of the study covered all the 12 listed Oil and Gas firms in Nigeria; out of which, 10 firms (11 PLC. Animo International PLC., ARDOVA PLC., Capital Oil PLC., Conoil PLC., Eterna, PLC. Japaol Oil and Maritime Services PLC, OANDO PLC., Seplat Petroleum Development Company PLC., and Total Nigeria PLC.) were randomly sampled. The study covered 10 years, spanning from 2010-2019 and the data used were gathered from the financial reports of the sampled firms. The justification for the selected time frame is based on the eagerness of the researcher to cover the period of the global financial and economic crises and the period of domestic economic recession that affected every sector of the economy, the study captured financial performance with return on equity while the capital structure was captured with debt ratio, debt equity ratio, long-term debt ratio, short-term debt ratio. The choice of the predictor variables was based on the interest of the researchers to achieve the proposed objectives of the study. The study adapted the model used by Nelson and Peter (2019) to examine the effect of capital structure on firm performance: evidence from microfinance banks in Nigeria. The functional and linear representation of the model is given thus:

\[
ROE = \beta_0 + \beta_1DER + \beta_2LDR + \beta_3TDR + \mu
\]  

Where ROE is Return on Equity, DER is Debt Equity Ratio, LDR is Long-term Debt Ratio, TDR is Total Debt Ratio, \( \mu \) is error term, \( \beta_1 - - - - \beta_3 \) are the slop parameters and \( \beta_0 \) is the intercept. However, the model was modified with the inclusion of short-term debt ratio, with the intention of assessing how the performance of firms could be affected with short-term loans. In the same vein, the new model was controlled with firm size, proxied with the total assets. The functional and linear representation of the new model is given thus:

\[
ROE = \beta_0 + \beta_1DER_{it} + \beta_2TDR_{it} + \beta_3LDR_{it} + \beta_4SDR_{it} + \mu_{it}
\]  

Where SDR is Short-term Debt ratio, subscript “it” represents the combination of time and individuality, \( \mu_{it} \) means error term. The Analysis begins with the description of data with the use of mean, standard deviation, minimum and maximum. This was followed by Pearson correlation matrix with the intention of showing the relationship between the outcome and predictor variables of the study. Thereafter, a regression analysis was carried out on the panel data with regards to pooled Ordinary Least Square (OLS) estimation, fixed effect estimation, random effect estimation and other position estimation tests which include restricted F-test, Hausman test, Wald test of heterogeneity, Pesaran test of cross-sectional dependence and Wooldridge test.
IV. RESULTS AND DISCUSSION

4.1 Results

Descriptive statistics, correlation and regression analysis tables are presented below.

Table 1: Definitions of Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Types</th>
<th>Measurements</th>
<th>A-priori Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Assets</td>
<td>Outcome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Equity Ratio</td>
<td>Predictor</td>
<td>Total debt over shareholders’ equity</td>
<td>+</td>
</tr>
<tr>
<td>Total Debt Ratio</td>
<td>Predictor</td>
<td>Total debt to total asset</td>
<td>+</td>
</tr>
<tr>
<td>Long-term Debt Ratio</td>
<td>Predictor</td>
<td>Long-term debt to total asset</td>
<td>+</td>
</tr>
<tr>
<td>Short-term Debt ratio</td>
<td>Predictor</td>
<td>Short term debt to total asset</td>
<td>+</td>
</tr>
</tbody>
</table>

Source: Author’s Computation (2020).

The sampled firms in the study is not given consideration as employ more short-term debt than long term debt as a proportion of total asset. The standard deviation values show that all the variables have low variability, except TDR. The minimum and maximum values of ROE, DER, TDR, LDR and SDR are 3.23(59.23), -12.58(156.42), -72.78(153.78), -0.59(67.23) and 0.65(111.97).

Table 2: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>100</td>
<td>14.84</td>
<td>8.13</td>
<td>3.23</td>
<td>59.23</td>
</tr>
<tr>
<td>DER</td>
<td>100</td>
<td>22.75</td>
<td>10.67</td>
<td>-12.58</td>
<td>156.42</td>
</tr>
<tr>
<td>TDR</td>
<td>100</td>
<td>44.02</td>
<td>28.55</td>
<td>-72.78</td>
<td>153.78</td>
</tr>
<tr>
<td>LDR</td>
<td>100</td>
<td>22.04</td>
<td>10.41</td>
<td>-0.59</td>
<td>67.23</td>
</tr>
<tr>
<td>SDR</td>
<td>100</td>
<td>28.99</td>
<td>8.51</td>
<td>0.65</td>
<td>111.97</td>
</tr>
</tbody>
</table>

Source: Data Analysis, 2020

Table 3: Pearson Correlation

<table>
<thead>
<tr>
<th>Variable</th>
<th>ROE</th>
<th>DER</th>
<th>TDR</th>
<th>LDR</th>
<th>SDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DER</td>
<td>-0.072</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDR</td>
<td>0.171</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDR</td>
<td>-0.490</td>
<td>0.205</td>
<td>0.123</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SDR</td>
<td>0.356</td>
<td>0.288</td>
<td>-0.136</td>
<td>0.217</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Data Analysis, 2020

Table 3 reveals that ROE maintains a negative correlation with DER (-0.072), TDR (+0.568) and LDR (-0.490), reflecting that increase in DER, TDR and LDR engenders decrease in ROE. This indicates an inverse relationship. The relationship between ROE and SDR is positive with the correlation coefficient of 0.356, indicating that there is a direct relationship between ROE and SDR over the years the covered by this study.

Table 4: Regression Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coeff</th>
<th>Std.Err</th>
<th>Prob</th>
<th>Coeff</th>
<th>Std.Err</th>
<th>Prob</th>
<th>Coeff</th>
<th>Std.Err</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.391</td>
<td>0.912</td>
<td>2.088</td>
<td>0.515</td>
<td>0.151</td>
<td>0.018</td>
<td>0.601</td>
<td>0.092</td>
<td>0.000</td>
</tr>
<tr>
<td>DER</td>
<td>0.331</td>
<td>0.023</td>
<td>0.008</td>
<td>0.309</td>
<td>0.113</td>
<td>0.031</td>
<td>0.352</td>
<td>0.017</td>
<td>0.002</td>
</tr>
<tr>
<td>TDR</td>
<td>0.641</td>
<td>0.448</td>
<td>0.320</td>
<td>-0.528</td>
<td>0.471</td>
<td>0.450</td>
<td>-0.504</td>
<td>0.492</td>
<td>0.423</td>
</tr>
<tr>
<td>LDR</td>
<td>-0.599</td>
<td>0.750</td>
<td>0.067</td>
<td>-0.646</td>
<td>0.673</td>
<td>0.787</td>
<td>-0.291</td>
<td>0.209</td>
<td>0.098</td>
</tr>
<tr>
<td>SDR</td>
<td>-0.772</td>
<td>0.135</td>
<td>.809</td>
<td>-0.511</td>
<td>0.379</td>
<td>0.084</td>
<td>-0.422</td>
<td>0.055</td>
<td>0.000</td>
</tr>
</tbody>
</table>

R-Squared: 0.1884  Adj. R-Squared: 0.1672  F-Stat: 4.81  Prob (F-Stat): 0.0296

Table 4 shows that when heterogeneity effect across the sampled firms in the study is not given consideration, DER and TDR exert a positive effect on ROE with the coefficient values of 0.331 for DER and 0.641 for TDR. However, the positive effect was only significant for DER with the probability value of 0.008, as against the positive
effect of TDR that was not significant with the probability value of 0.320. Also, LDR and SDR exert a negative and insignificant effect on ROE to the tune of -0.599(0.067<0.05) for LDR and -0.772(0.809>0.05) for SDR. The adjusted R-square statistics reported in table 4 showed that about 17% of the systematic variation in ROE can be jointly explained by DER, TDR, LDR and SDR. The F-statistics along with the probability value given to be 4.81 and 0.0296 respectively show that the model is fit.

When the estimation systematically incorporated the heterogeneity effect across sampled firms into the model to account for the firms’ uniqueness, table 4 shows that TDR, LDR and SDR have a negative and insignificant effect on ROE to the tune of -0.528(0.450>0.05) for TDR, -0.646(0.787>0.05) for LDR and -0.511(0.08<0.05) for SDR. DER has a positive and significant effect on ROE to the tune of 0.309(0.031<0.05). The R-square statistics reported in table 4 showed that about 35% of the systematic variation in ROE can be jointly explained by DER, TDR, LDR and SDR. The F-statistics along with the probability value given to be 15.87 and 0.0027 respectively show that the model is fit.

Random effect estimation result presented in Table 4 revealed that when heterogeneity effect across firms and over time is incorporated into the model via the error term, TDR, LDR and SDR have a negative effect on ROE with their respective coefficient values of -0.504, -0.291, -0.422. However, the negative effect was only significant for SDR with the probability value of 0.000, as against the insignificant negative effect of TDR and LDR with their respective probability values of 0.423 and 0.098. In the same vein, DER has a positive and significant effect on ROE to the tune of 0.352(0.002<0.05). The R-square statistics reported in table 4 showed that about 69.7% of the systematic variation in ROE can be jointly explained by DER, TDR, LDR and SDR. The F-statistics along with the probability value given to be 67.13 and 0.0000 respectively show that the model is fit.

### Table 5: Post Estimation Test

<table>
<thead>
<tr>
<th>Test</th>
<th>Chi-square stat</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference in coefficient not systematic</td>
<td>4.01</td>
<td>0.7107</td>
</tr>
<tr>
<td>Other Post estimation Test</td>
<td>Statistics</td>
<td>Probability</td>
</tr>
<tr>
<td>Wald test (panel homoscedasticity)</td>
<td>3.183</td>
<td>0.4522</td>
</tr>
<tr>
<td>Pesaran test (No cross-sectional dependence)</td>
<td>3.663</td>
<td>0.0413</td>
</tr>
<tr>
<td>Wooldridge test (No AR(1)panel autocorrelation)</td>
<td>0.305</td>
<td>0.4014</td>
</tr>
</tbody>
</table>

Source: Data Analysis, 2020

Table 5 reported chi-square statistic of 4.01 and probability value of 0.7107. The result revealed that there is no enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation is not significant. Therefore, the most consistent and efficient estimation is given by the random effect. Also, table 5 shows that there is no evidence to reject null hypothesis of panel homoscedasticity, no cross-sectional dependence and no AR (1) panel autocorrelation. Hence it can be established in the study that assumptions of equal variance of residual terms, cross sectional independence and absence of serial autocorrelation for the estimated panel-based model is valid.

### 4.2 Discussion of Findings

Panel regression was used and based on the most consistent and efficient estimation which was random effect, it was discovered that TDR, LDR and SDR have a negative effect on ROE with their respective coefficient values of -0.504, -0.291 and -0.422. However, the negative effect was only significant for SDR with the probability value of 0.000, as against the insignificant negative effect of TDR and LDR with their respective probability values of 0.423 and 0.098. This is indication that with a 1% increase in TDR, LDR and SDR, ROE will decrease by 0.504, 0.291 and 0.422. This outcome gave credence to the findings of Ikponmwosa and Eriki (2017) and Sebastian and Onuegbu (2018) that there is an inverse relationship between capital structure mechanism and firms’ profitability. However, the discovery made in this study failed to corroborate the findings of Rajendran and Nimalthasan (2013), Yinusa, Ismail, Yulia and Olawale (2019), Goh, Hall and Rosenthal (2016). They reported a positive significant effect of capital structure on financial performance. In the same vein, DER has a positive and significant effect on ROE to the tune of 0.352(0.002<0.05), reflecting that ROE stands the chance to increase by 0.352 with just a 1% increase in DER. This outcome was not in agreement with the findings of Maina and Kondongo (2013), Prahalathan and Ranjani (2011), Muritala (2012), Sabin and Miras (2015) and Babalola (2012). They reported no connection between capital structure and financial performance of organizations. The results still confirm the relevance of the trade-off theory to explain the relationship between capital structure and financial performance in the Nigerian context.

### V. CONCLUSION AND RECOMMENDATIONS

This study was an attempt to unravel the relationship between capital structure and financial performance of firms in the oil and gas sector in Nigeria. It was a study of 10 firms and spanned over 10 years, 2010-2019. It was concluded that the effect of capital structure on financial performance of firms, in terms of return on equity was statistically significant. Also, it was established that firms in the oil and gas sector in Nigeria used more equity than debt to finance their operations. It was equally established that debt in its variances has a negative effect on return on assets. Thus, it was therefore recommended that financial managers should establish a clear policy for capital structure
that will engender the right mix of equity and that will improve firms’ profitability. Government should provide guidelines that will pilot the growth rate of the economy to improve the profitability of organizations. Similar studies can be extended to other sectors of the economy.

REFERENCES


